

MULTIMEDIA



UNIVERSITY

STUDENT ID NO

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MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 2, 2022/2023

BFN3174 – FINANCIAL MODELLING

(All sections / Groups)

14 JULY 2023
9.00 p.m. – 11:00. m.
(2 Hours)

INSTRUCTIONS TO STUDENTS

1. This question paper consists of 4 pages, including the cover page.
2. Answer **ALL THREE** questions in **THREE SEPARATE** Excel spreadsheets in **ONE. SINGLE** Excel file.
3. Please name your Excel file with your **STUDENT ID**, followed by your **NAME**, for example, **111111623_AISHA.xls**
4. You need to submit your Excel file to the google classroom portal announced by the examiner. during the exam.

QUESTION 1 (20 MARKS)

On 1 April 2022 you are offered the following bond:

- Face value : RM1,000
 Coupon rate : 10%
 Coupon payments : 1 time per year, i.e. 1 January 2022, 1 January 2023,...
 Bond price : RM1200
 Maturity date : 1 January 2030

Using Microsoft Excel, you are required to:

- Compute the annual coupon payment. (3 marks)
- Compute the accrued interest. (4 marks)
- What is the actual invoice price for the bond? Explain why it is different from the quoted bond price? (4 marks)
- Compute the bond's yield to maturity (YTM) using XIRR. (6 marks)
- Compute the bond's yield to maturity (YTM) using YIELD formula. (3 marks)

QUESTION 2 (40 MARKS)

You are considering an investment in two projects, A and B. Initial cost of investment and projected cash flows are given as follows:

Year	Project A (RM)	Project B (RM)
0	(100,000)	(100,000)
1	10,000	50,000
2	15,000	40,000
3	25,000	35,000
4	30,000	25,000
5	40,000	28,000
6	50,000	30,000
7	60,000	20,000
8	65,000	32,000
9	70,000	30,000
10	80,000	35,000

Continued...

With the discount rate is 12% p.a., you are required to model the following:

- Present values (PVs) of all cash flows for Project A and Project B.
(10 marks)
- Net present value (NPV) for Project A and Project B, using only SUM. State your capital budgeting decision for each project if they are mutually exclusive projects.
(8 marks)
- Internal rate of return (IRR) Project A and Project B. State your capital budgeting decision for each project if they are mutually exclusive projects.
(8 marks)
- The exact crossover rate for these two projects. What is the role of the crossover rate?
(8 marks)
- A sensitivity analysis for the two projects' NPVs, if WACC ranges from 8% to 30%. Please make sure to include the crossover rate in the given range of WACC.
(6 marks)

QUESTION 3 (40 MARKS)

You are holding a portfolio of 5 stocks with expected returns and standard deviations as shown below:

Stocks	Expected returns	Standard Deviations
1	15%	11%
2	8%	5%
3	6%	3%
4	10%	11%
5	4%	5%

The correlations between the above stocks are given bellow:

Stocks	1	2	3	4	5
1	1				
2	0.1	1			
3	0.25	0.4	1		
4	0.6	0.35	0.7	1	
5	0.3	0.15	0.55	0.42	1

Continued...

Given the risk-free rate of 5% and equal weight given to each stock, please model the following:

- a. Portfolio variance – covariance matrix. (5 marks)
- b. Portfolio variance and standard deviation matrix (5 marks)
- c. Weight for Global Minimum Variance Portfolio and its expected return and standard deviation. (10 marks)
- d. Weight for Optimal Portfolio and its expected return and standard deviation. (10 marks)
- e. Model and construct the efficient frontier from the GMVP and OP found in(c) and (d). (10 marks)

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